

APPENDIX G-1
Summary of Proposed Modifications to the
California Emission Control and Smog Index Label Specifications

The proposed amendments to these specifications reflect changes due to CAP 2000 and revisions to the Smog Indices because of the LEV II standards. The following is a detailed description of the methodology used to calculate the smog indices.

(a) For 2000-2003 Model-Year Smog Index Calculations, Change Baseline Vehicle to “Enhanced Evap.” Certified Tier 1 Gasoline Passenger Car. When smog indices were originally developed, they were calculated based on the assumption that Tier 1 vehicles that certified to the 2.0 gram 1-hour diurnal plus hot soak evaporative emission standards would still be offered for sale. This vehicle was used as the baseline vehicle for the smog index calculations. However, beginning with the 1999 model-year, new vehicles will no longer be able to certify to those evaporative emission standards. Accordingly, the smog indices have been recalculated for the 2000-2003 model-years recognizing that all new vehicles sold would meet the new, more stringent “enhanced evap.” emission standards (2.0 gram 3-day diurnal plus hot soak hydrocarbon (HC) per test and 0.05 gram running loss HC/test). Therefore, for 2000-2003 model-year smog index calculations, staff is proposing to use a Tier 1 vehicle that certifies to “enhanced evap.” standards as the baseline vehicle.

(b) Assign Smog Indices to 2000-2003 Model-Year Tier 1, Option 2 Diesels. Vehicles certifying to the 100,000 mile (Tier 1, Option 2) diesel-specific standards are not addressed in the current Label Specifications. To correct this oversight, staff is proposing to assign smog indices to these vehicles.

(c) Update g/mi Evaporative HC Emissions Estimate Used in Smog Index Calculations. Previous smog indices used evaporative HC emissions of 0.14 g/mi HC for vehicles that certified to “enhanced evap.” standards. Based on the ARB’s emission inventory model EMFAC7G, evaporative g/mi HC emissions from passenger cars that certify to “enhanced evap.” emission standards are 0.07 g/mi. Accordingly, staff is proposing to use this value when calculating smog indices for 2000-2003 model-year vehicles that certify to “enhanced evap.” standards.

In the current LEV II proposal, new, more stringent evaporative standards would be required. Therefore, for 2004 and subsequent vehicles meeting the new evaporative standards, new evaporative g/mi HC emissions estimates are needed. Staff proposes to reduce the 0.07 g/mi HC estimate by the percentage of increased stringency of the new, proposed evaporative emission standards. The estimated percent reductions and g/mi HC estimates are shown below and indicated in bold. Staff is proposing to use these g/mi HC estimates when calculating smog indices for vehicles certifying to the new evaporative standards.

Passenger Cars

	<u>"Enhanced Evap."</u>	<u>"New Evap."</u>
Standard	2.0 g/test	0.4 g/test
g/mi HC	0.07 g/mi	0.0175 g/mi

Light-Duty Trucks < 6,000 lbs GVW

	<u>"Enhanced Evap."</u>	<u>"New Evap."</u>
Standard	2.0 g/test	0.45 g/test
g/mi HC	0.07 g/mi	0.0228 g/mi

Light-Duty Trucks > 6,000 lbs GVW

	<u>"Enhanced Evap."</u>	<u>"New Evap."</u>
Standard	2.0 g/test	0.65 g/test
g/mi HC	0.07 g/mi	0.0315 g/mi

(d) **Create a Single Set of Smog Indices For All Light-Duty Vehicles.** Currently, separate smog indices are assigned to PC/LDT1 and LDT2 categories. As mentioned earlier, the current trend in light-duty vehicle purchasing is an increasing consumer preference for sport-utility vehicles and light pickups. An often overlooked consequence of this shift in vehicle selection is the air quality penalty associated with these heavier vehicles, which are currently subject to less stringent emission standards than passenger cars. It is unlikely there is much recognition by purchasers of new vehicles that the choice of these larger vehicles rather than conventional cars is detrimental to air quality. Therefore, staff is proposing to create a single set of smog indices for all light-duty vehicles. This would provide vehicle purchasers the information necessary to compare the smog-forming contribution of trucks and sport-utility vehicles to passenger cars.

(1) **2000-2003 Model-Years.** Staff is proposing to adopt smog indices for PCs/LDT1s and LDT2s based on a single scale using a Tier 1 gasoline passenger car as the baseline vehicle.

(2) **2004 and subsequent Model-Years.** Beginning with the 2004 model-year, PCs and LDTs < 8,500 lbs. GVW would be required to meet the same exhaust emission standards. Therefore, staff is proposing to create a single set of smog indices for these vehicles.

(e) **Change the Baseline Vehicle to a TLEV Gasoline Passenger Car For 2004 and subsequent Model-Year Smog Index Calculations.** Beginning with the 2004 model-year, Tier 1 vehicles would no longer be offered for sale. Therefore, for 2004 and subsequent model-years, staff is proposing to assign the TLEV gasoline passenger car (0.125 g/mi NMOG, 0.4 g/mi NOx and 0.07 g/mi Evaporative HC) as the baseline vehicle for calculating smog indices for passenger cars, and light-duty trucks < 8,500 lbs. GVW.

(f) **Calculate Fleet Average Smog Indices.** Staff is proposing to calculate fleet average smog indices that would be added to the smog index label so the new vehicle purchaser would be able to compare the smog-forming capacity of a given vehicle to the smog-forming capacity of the “average” vehicle within that model-year’s fleet.

(1) **2000-2003 Model-Years.** For 2000-2003 model-years, staff is proposing to calculate the fleet average smog indices incorporating vehicle sales estimates and implementation schedules as described below.

(A) **Estimated 2000-2003 Model-Year Vehicle Mix.** California 1997 production numbers indicate that 78 percent of light-duty vehicles fall within the PC/LDT1 category and 22 percent fall within the current LDT2 category. Staff is proposing to use this vehicle mix for 2000-2003 model-year fleet average smog indices.

(B) **Incorporate the PC/LDT1 and LDT2 Implementation Schedules from the 1990 Staff Report.** Staff is proposing to use the PC/LDT1 and LDT2 implementation schedules from the technical support document for the 1990 Proposed Regulations for Low-Emission Vehicles and Clean Fuels Staff Report for calculating the fleet average smog indices.

(2) **2004 and subsequent Model-Years.** For 2004 and subsequent model-years, staff is proposing to calculate the fleet average smog indices incorporating vehicle sales estimates and the proposed LEV II standards, as described below.

(A) **Estimated 2004 and subsequent Fleet Mix.** As mentioned earlier, it is anticipated that the market for sport-utility vehicles and light pickups will increase to 50 percent of the new light-duty vehicle fleet over the next ten years. According to 1997 manufacturers’ production data, approximately 2/3 of all light-duty trucks and medium-duty vehicles are < 6,000 lbs. GVW. Therefore, staff is proposing to assume an even split between passenger cars and trucks 0 - 8,500 lbs. GVW and a further split of 67 percent trucks > 6,000 lbs. GVW and 33 percent trucks < 6,000 lbs. GVW when calculating the fleet average smog indices.

(B) **Incorporate the PC/LDT1 and LDT2 Implementation Schedules Presented Earlier in Tables II-7 and II-8.** Staff is proposing to use the PC/LDT1 and LDT2 implementation schedules presented earlier in Tables II-7 and II-8 when calculating the fleet average smog indices.

(C) **Incorporate the proposed LEV and ULEV NO_x emission standards.** The proposed LEV and ULEV NO_x emission standards for 2004 and subsequent model-year light- and medium-duty vehicles (0-8500 lbs. GVW) are 0.05 g/mi. The phase-in of these standards is 25% in 2004, 50% in 2005, 75% in 2006 and 100% in 2007 and beyond. Staff incorporated this phase-in to calculate the fleet average smog indices.

(g) Update Smog Index Label and Add Language to the Label Specifications.

To increase the vehicle purchaser's awareness and understanding of the smog index label, staff is proposing to update the label example included in the Label Specifications. The updates to the smog index label are described below. The proposed label is presented at the end of the staff report.

1. Add the Title – “Smog Emissions Information.” The term “smog index” is generally not clear to the public. Therefore, to make the meaning of the label clearer staff is proposing to add the title, “Smog Emissions Information” to the smog index label.

2. Add the Fleet Average Smog Index. As mentioned earlier, staff is proposing to add the fleet average smog index to the smog index label so that the new vehicle purchaser would be able to compare the smog-forming capacity of a given vehicle to the smog-forming capacity of the average vehicle within that model-year's fleet.

3. Add Arrows Indicating That One End of the Smog Index Scale is “Cleaner” and the Other End is “More Polluting”. Staff is proposing to add arrows to the smog index label so consumers would be able to instantly see that lower smog indices indicate “cleaner” cars and higher smog indices indicate “more polluting” cars.

4. Add the Words “Smog-Forming” Before the Word “Pollutants” to the Descriptive Note Printed on the Smog Index Label. Currently, there is a note on the smog index label that reads, “The Smog Index (SI) indicates the relative level of pollutants emitted by the vehicle...” The label actually provides information only on the vehicle's smog-forming emissions. Therefore, staff is proposing to add the words “smog-forming” before the word “pollutants” on the descriptive note printed on the smog index label.

5. Change the Smog Index Scale's Range to 0.0 - 3.0 on the Smog Index Label. The current smog index label scale ranges from 0.0 to 10.0. However, since the new smog indices range from 0.00 to 2.64, a smog index scale with a range of 0.0 - 3.0 better represents the range of vehicles' smog indices. Therefore, staff is proposing to change the smog index scale's range to 0.0 - 3.0.